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FINAL REPORT

**Agriculture Research Branch
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**EVALUATION OF NEW VEGETABLE CROPS AND
CULTIVARS FOR ADAPTATION TO SASKATCHEWAN**

**Funded by
Technology Adoption Demonstration**

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University of Saskatchewan**



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for Adaptation to Saskatchewan**

TAD Project No: 20000157

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Abstract : Cultivar testing represents a highly efficient means of maintaining and/or improving yields, quality and profitability of all crops, but is particularly beneficial in vegetable crops. The rate at which plant breeders are improving vegetable crops is dramatic. Over the 2001, 2003 and 2004 growing seasons, this project evaluated over 900 cultivars of 23 different crops of importance to Saskatchewan's vegetable sector. The cultivars were evaluated for their agronomic performance and consumer appeal utilizing standard production practices and market standards. Storage and processing trials were conducted on some crops. The cultivar recommendations generated from this program have been made available to Saskatchewan's growers and stakeholders associated with the industry (seed suppliers, extension personnel) via publications and numerous presentations. The cultivar recommendations are widely utilized by Saskatchewan's vegetable growers.

Background

Each year, thousands of new vegetable cultivars are released from seed companies and public research institutions around the world. These new cultivars provide the potential for increased yields, quality and pest resistance. At the same time, changing production practices, pest pressures, economic conditions and environmental constraints alter the performance requirements of vegetable cultivars. Cultivars which were once the industry standard soon become obsolete and/or unavailable due to these rapid changes. Cultivar screening trials represent an opportunity to match the breeders' achievements with the changing needs of both the grower and the consumer.

Vegetable cultivar testing trials have been on-going in Saskatchewan since the mid-1970's as a service conducted by the Horticulture Department at the University of Saskatchewan through funding provided by the ERDA Horticultural Development Program, the Agriculture Development Fund and most recently through the Technology Adaptation Program administered by Saskatchewan Agriculture and Food.

This project supported the continuation of Saskatchewan's vegetable cultivar testing program during the 2001-2003 cropping seasons.

Project Objectives

To examine newly released cultivars of vegetable crops of commercial significance in Saskatchewan for their suitability and adaptation to Saskatchewan growing conditions, commercial production practices and market demands. New releases are compared to the industry standards in side by side trials over multiple growing seasons. Cultivars are recommended if they show consistent superiority to presently recommended cultivars.

The specific objectives of the project are;

- a) to continue testing the suitability of newly released vegetable cultivars for production in Saskatchewan;*
- b) to examine cultivar performance in relation to the differing soil, climate and production practices encountered in Saskatchewan;*
- c) to prepare a listing of recommended cultivars for Saskatchewan vegetable growers,*
- d) to inform Saskatchewan's vegetable growers, extension personnel, industry stakeholders and consumers about the attributes of the cultivars tested.*

The project was originally slated to run from 2001 to 2003, however in 2002 the project could not be conducted due to the illness of one of key project staff. The project requested and received a one year, no cost extension to the project. The 2004 cropping season was consequently added to the project.

Methodology

The trials conducted from 2001, 2003 and 2004 were conducted at the University of Saskatchewan - Horticulture Field Research station in Saskatoon. This site has been in continuous production of vegetable crops for the past 20 years. This type of limited rotation is representative of the situation at most small-scale vegetable farms. The site features a Sutherland Series clay loam soil (pH 7.3, E.C. < 1.0dS/m). Clay type soils are not considered ideal for vegetable crop production, but with appropriate management these soils can be extremely productive. As a function of the longterm vegetable rotation, the soil tests very high for most required nutrients and only limited fertilizer applications are required in each year. The site is protected by a well established shelter-belt system. All crops were irrigated using either drip or overhead irrigation systems. Irrigation is required for optimum yields and quality of most vegetable crops in major production areas of Saskatchewan.

Cultivars were selected for testing based on their performance in previous trials, recommendations from other provinces, local growers, industry sources and seed companies. In all trials, the standard cultivars presently recommended by the University of Saskatchewan and/or those used by the industry were included as comparative checks.

The crops, number of cultivars tested and the crop characteristics evaluated in 2001 are listed below:

<u>Crop</u>	<u>Cultivars Tested</u>	<u>Characteristics Measured</u>
Beans (Yellow)	18	Stand %, yield, disease resistance
Broccoli	42	Stand %, days to maturity, head quality
Corn	34 early 52 main	Stand %, days to maturity, yields, cob characteristics
Cucumbers (Slicing)	52	Earliness, yields, fruit quality
Eggplant	37	Earliness, yields, fruit quality
Garlic	25	Bulb yield and quality
Head Lettuce	32	Earliness, head quality
Kohlrabi	16	Yields, flavor, uniformity
Oriental Vegetables Choy, Greens,	40	Quality, yields, bolting
Tomatoes	73	Yields, fruit quality
Snow Peas	19	Pod yield and quality, vine vigor
Turnips	12	Yields, maggot damage
Total Crops	13	
Total Cultivars > 300		

The crops, number of cultivars tested and the crop characteristics evaluated in 2003 are listed below:

<u>Crop</u>	<u>Cultivars Tested</u>	<u>Characteristics Measured</u>
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Brussels Sprouts (transplanted)	9	Yield, quality, ease of harvest
Cauliflower (transplanted)	44	Yield and head quality
Corn	30 early 52 main	Stand %, days to maturity, yields, cob characteristics
Garlic	19	Overwinter survival, bulb yield and quality
Peas	38	Stand, disease resistance, yields and quality
Pumpkins (transplanted)	41	Fruit size, yields and quality
Romaine Lettuce	32	Stand, head yield and quality
Sweet Peppers (transplanted)	55	Earliness, green and red yields, fruit quality
Winter Squash (transplanted)	28	Fruit yields and quality
Yellow Zucchini (transplanted)	9	Ease of harvest, fruit yields and quality
Total Crops	10	Total Cultivars > 350

The crops, number of cultivars tested and the crop characteristics evaluated in 2004 are listed below:

<u>Crop</u>	<u>Cultivars Tested</u>	<u>Characteristics Measured</u>
Brussels Sprouts (transplanted)	24	Yield, quality, ease of harvest
Cauliflower (transplanted)	50	Yield and head quality
Corn	30 early 52 main	Stand %, days to maturity, yields, cob characteristics
Garlic	21	Overwinter survival, bulb yield and quality
Peas	47	Stand, disease resistance, yields and quality
Pumpkins (transplanted)	65	Fruit size, yields and quality
Radish	36	Yields and root quality, bolting
Romaine Lettuce	47	Stand, head yield and quality
Spinach	29	Bolting, leaf yields and quality

Sweet Peppers (transplanted)	67	Earliness, green and red yields, fruit quality
Winter Squash (transplanted)	55	Fruit yields and quality
Yellow Zucchini (transplanted)	9	Ease of harvest, fruit yields and quality
Total Crops	12	Total Cultivars > 500

Production Practices

Crop production and pest control measures generally followed recommended practices. Soil fertility levels were adjusted according to the recommendations outlined in the Horticulture Science Publication: "Vegetable Crop Fertility Schedules" (ERDA Publication No. 88-3). All crops received a mid-season application of nitrogen either through the irrigation system or via side-dressing. Overhead or drip irrigation were used to maintain adequate soil moisture levels throughout the growing season at all sites.

Direct seeded crops were planted using a Planet Jr. type seeder. Each cultivar is planted in twin rows ranging from 6-10 m in length. Long season and frost sensitive crops were grown from transplants. Plasticulture techniques such as soil mulches and crop covers were used to improve growing conditions for the warm season crops.

A high level of weed control was achieved using herbicides combined with mulches, tillage and hand weeding. The crops were drip or overhead irrigated, with the timing and amount of irrigation applied based on measurements of soil moisture potentials in the plot area.

Relatively few disease or insect problems were encountered. Where required, appropriate pest control measures and products were applied.

The crops were hand harvested several times/week to insure maximum yields and quality. All data are for marketable product, based on local grading standards.

Specific production methods are outlined in the detailed annual reports (see attached).

2001 CULTIVAR RECOMMENDATIONS

Broccoli

Many of the cultivars recommended from previous years (**Arcadia**, **Emerald City**, **Emperor**, **Eureka**, **Marathon** and **Patriot**) performed very well in the 2001 trial. **Nomad** and **Captain** were early cultivars with acceptable yields and quality. **Coronado** combined excellent yields and quality with a later maturity date. **Sakura TSX-7** had exceptional quality but was somewhat late.

Corn

The unusually long and warm growing season was near ideal for corn. Virtually all the cultivars tested were fully mature prior to the first killing frost. The cultivars were evaluated for earliness, taste, yields and quality. Average yields did not vary between the three different types of corn tested (standard (su), sugar enhanced (se) and supersweet (sh2)), but the flavor and sweetness of the se and sh2 types were superior to the su. **'Early Sunglow'** had the best yields and taste combination of the standard (su) cultivars tested.

Of the sugar enhanced (se) cultivars tested, **'Delight'** and **'Grant'** are recommended for their earliness, good to excellent yields, excellent flavour and sweetness. **'Early Choice'**, **'Luscious'**, **'Rapport'**, **'Seneca Dancer'** and **'Sweet Symphony'** were all somewhat later but had excellent yields and cob quality.

New supersweet cultivars recommended for excellent yields, sweetness and flavour are **'Cabaret'**, **'Candy Corner'**, and **'Xtra Tender Brand 275A'**.

Cucumber

Direct seeded slicing cucumbers were evaluated for earliness, yields, taste and quality. Cucumber fruit that was oversize, scarred, bent or yellow was considered unmarketable. **'Genuine'** and **'Sweet Success'** are the earliest cultivars. **'Genuine'** has good flavour and yields. **'Sweet Success'** has good flavour but a high gradeout. Cultivars recommended for their excellent yields and flavour include **'Lightning'**, **'Marketmore 76'**, **'Panther'** and **'Raider'**. Cultivars recommended for their good flavour and yields include **'Fanfare'**, **'Natsuhikari'**, **'Seneca Longbow'**, **'Superset'**, **'Ultrapak'** and **'Vertige'**.

Eggplant

The eggplants were established from transplants. The crops grew well at both sites but fruit set was extremely poor in some lines - with some very vigorous plants producing no marketable fruit. Abnormalities in fruit shape coupled with fruit scarring due to wind damage resulted in a high percentage of the fruit being graded as unmarketable. **'Aubergine'** and **'Dusky'** represented the best standard globe type eggplants. The white type **'Casper'** produced decent yields. Extensive scarring reduced yields of all the long oriental types of eggplant to below acceptable levels.

Garlic

Thirty garlic cultivars, collected from local suppliers, retail outlets and seed houses were planted in the fall of 2000. The **'Music'** line was far superior to all others in terms of overwinter survival, yields and bulb quality. **'Music'** is the standard garlic type grown commercially in much of Canada. One of the Fishlake lines also did very well. Many lines did very poorly, including several of the lines which had performed well in a previous spring-planted trial.

Head Lettuce

Head lettuce trials at both sites again suffered significant yield losses due to early bolting, tip burn and head drop caused by sclerotinia. Although some cultivars performed better than others, few performed well enough to be recommended for commercial production. **'Gemini'** produced excellent yields of relatively small, dense heads. **'Tiber'** also produced excellent yields of relatively small but disease free dense heads. The quality of cv. **'Lighthouse'** was exceptional with large, dense heads with great flavor - however yields of this cultivar were poor at the Outlook site. **'El Dorado'** produced excellent yields of large but relatively loose heads. Neither of the cultivars recommended in previous years (**Mesa 659** and **Great Lakes**) performed particularly well.

Kohlrabi

The kohlrabi crop was exceptional at both sites with many lines producing exceptional yields with excellent quality and a high degree of uniformity. **'White Vienna'** and **'Early White Vienna'** provided exceptional yields with acceptable quality, while **'Express Forcer'** and **'Rapidstar'** had decent yields with very good flavor.

Oriental Greens

Several types of oriental greens were seeded. Pac Choi types recommended for quality and yields include **'Brisk Green'** and **'Joi Choi'**. **'Brisk Green'** plants are considerably smaller than **'Joi Choi'**. All the cabbage types were attractive and performed well. **'Blues'** and **'Yuki'** have the best yields and flavour. Many of the greens that were trialed bolted early. **'Early Mizuna'**, **'Garland'**, **'Green Wave'**, **'Komatsuna Oriental Greens'** and **'Tokyo Bell'** are attractive greens with good flavour. Three Daikon radish cultivars were tested. All radish roots were maggot infested; few marketable roots were harvested.

Snow Pea

Snow peas were rated for earliness, yields, flavour and quality. There were few problems with mildew in 2001 with excellent crop vigor at both sites. **'Oregon Sugar Pod II'** again had the best combined vigor, yield and quality. **'Sugar Anne'** which was also recommended previously did not yield well but its quality was exceptional. **'Super Snappy'** produced exceptionally high yields but its flavor was only fair, while **'Super Sugar Snap'** produced good yields of very flavorful pods.

Summer Turnip

There were relatively few lines available for testing and none performed particularly well. Maggot problems were severe at both test sites and the percentage grade out to maggot damage was extremely high in many lines. **'Royal Crown'** and **'Royal Globe II'** were the exceptions, producing excellent yields with minimal grade out at both sites.

Tomato

The long, hot frost free growing season resulted in exceptional yields and crop quality in the tomato trial. Many of the cultivars were completely harvested prior to fall frost which is highly unusual. Many of the cultivars previous recommended based on shorter growing seasons did not perform overly well in 2001. **'Johnny's 361'** and **'Roadside Red'** which were recommended in previous years for their earliness and excellent yields also did well in 2001. **'Siletz'** also combined earliness with good yield potential. **'Super Fantastic'** was later but produced excellent yields of very high quality fruit. The yellow-fruited **'Taxi'** were extremely popular with excellent yields and flavor.

Yellow Beans

Beans were seeded in mid-May once soil temperatures had warmed to 15°C. The trial was harvested weekly until production ceased. Marketable yields were excellent at both sites. The cultivars were evaluated for yield, earliness, pod size and ease of picking. The previously recommended cultivars **'Eureka'**, **'Gold Rush'**, **'Fruidor'**, and **'Gold Mine'** are again recommended for their overall quality. **'Gold Mine'** and **'Golden Rocky'** stood out as a high yielding, early, easy to pick lines with excellent pod quality, earliness, excellent yields. **'Eureka'** and **'Fruidor'** were more difficult to pick than most other cultivars. **'Nugget'** had excellent yields however it was difficult to pick and the pod tips tended to be green. **'Valdor'** also had green tipped pods but it was higher yielding and easier to pick than **'Nugget'**.

The detailed data on performance of the various cultivars tested in 2001 are presented in the attached Bulletin

2003 CULTIVAR RECOMMENDATIONS

Brussels Sprouts

Brussels Sprouts were transplanted in mid-May. Plants were sprayed once during the season to control flea beetle and cabbage looper damage. In early September, all plants had 2cm removed from the growing point to ensure that the sprouts would size up prior to harvest. A wide range of quality and yields were observed among the nine cultivars tested. **'Oliver'** (recommended in previous trials) was again the best performing cultivar in 2003: its yields and quality were excellent. **'Adagia'** is recommended for its good yields, ease of sprout removal and sprout quality. However, **'Adagia'** did have a considerable number of sprouts near the bottom of the stalk that had excessive insect damage. **'Jade Cross'** is recommended for its excellent yields and quality however, sprout removal was very difficult for this cultivar.

Cauliflower

To ensure that all cultivars had a uniform stand, the cauliflower were transplanted in the field in mid-May. Transplants suffered some heat stress immediately after transplanting however, all cultivars appeared to recover fully into strong robust plants. Plants were sprayed with Decis once during the season to control cabbage loopers. Part of the purpose of this trial was to find cauliflower cultivars that were self blanching. However, the majority of cauliflower cultivars would benefit from having their leaves tied to ensure attractive white heads throughout the harvest period. The best early cultivars for both yields and quality were **'Baldo'**, **'Somerset'** and **'Minuteman'** (**'Minuteman'** is also recommended in previous trials). Main season cultivars recommended for their yields and quality were **'Callisto'**, **'Casper RZ'**, **'Cassius F1'**, **'Cumberland'**, **'Drummond RZ'**, **'Freedom'**, **'Freemont'**, **'Phoenix'**, **'Symphony'**, **'Wentworth'** and **'White Excel'**. **'Solvang ZW'**, **'Shasta'** and **'Lateman'** are later cultivars with attractive white to off-white curds along with good yields and quality. **'Guardian'** is also recommended as a late cultivar with good yields and quality however, its leaves must be tied to ensure a white curd.

Sweet Corn

With the exception of a few new cultivars, the majority of the corn cultivars tested in 2003 were recommended in previous University of Saskatchewan corn cultivar trials. Consequently, the quality of the corn trial in 2003 was excellent. Of the five standard cultivars tested, **'Seneca Horizon'** is recommended as the best early standard cultivar with good yields and taste: however, tip and cob fill were only average. **'Earlivee'** is recommended as the earliest standard corn cultivar however, its cobs were small.

Of the forty four sugar enhanced corn cultivars tested, **'Luscious'** (bicolor), **'Early Choice'** (yellow) and **'GH 7006'** (yellow) have the best combination of earliness, excellent yields, tip fill, cob fill and taste. **'Blaze'** (yellow) is also recommended for its earliness and quality however, its cobs were slightly smaller than average. **'Seneca Tomahawk'** (bicolor) is an early sugar enhanced bicolor with excellent yields and flavour however, its tip and cob fill were rated below average. **'Geronimo'** (early bicolor) had excellent tip fill, cob fill and flavour however, its yields were below average. Main-season sugar enhanced cultivars recommended for a combination of good flavour and yields include **'10524'** (bicolor), **'10331'** (bicolor), **'Delight Bicolor'** (bicolor), **'Cochise'** (bicolor), **'Temptation'** (bicolor) and **'Seneca Pronto'** (yellow). **'Providence'** is a late maturing sugar enhanced bicolor recommended for its excellent yields, flavour and quality.

Thirty three supersweet corn cultivars were tested. The earliest supersweet cultivar with excellent flavour and quality was **'277A Xtra Tender Brand'**: its yields, however, were below average. **'Sweet Chorus'** (bicolor), **'Sweet Tooth'** (bicolor) and **'Xtra Tender Brand 275A'** (bicolor) are later cultivars with better yields, good flavour and good cob/tip fill. **'Candy Corner'** (bicolor) has excellent yields and flavour however, its cob and tip fill are only average. **'Yumeno'** (bicolor) is a later supersweet cultivar with excellent yields and flavour. **'278A Xtra Tender Brand'** (bicolor) is a later cultivar recommended for its yields however taste and cob/tip fill is variable. The only yellow supersweet cultivar recommended is **'Mirai 002'**: a later supersweet cultivar with average yields but excellent taste and quality.

Garlic

Garlic cloves were planted in October, 2002, mulched with ammoniated straw during the winter and uncovered in early May. Winter survival for the majority of the twenty cultivars was excellent. **'FL F4'** and **'FL F40'** are two softneck types recommended for good marketable yields combined with good bulb size and quality. **'FL F40'** has a high number of cloves/bulb. **'M&M Stiffneck'** was the best stiffneck

cultivar tested with good yields and excellent bulb size: clove size was also large. **'Music'** and **'IGA'** are stiffneck cultivars with good yields and large cloves. **'M&M Small Softcore'** has smaller bulbs with many small cloves per bulb. **'Czech'** (stiffneck type) is recommended for its excellent yields, good bulb and clove size.

Peas

Thirty eight pea cultivars were tested. Disease and insect pressure significantly reduced total yields and quality of all cultivars. The best early cultivar with acceptable yields and taste was **'Wando'**. **'Galena'**, **'Maxigolt'**, **'Novella Improved'** and **'Straight Arrow'** are main season cultivars recommended for their yields and flavour. **'Early Frosty'** is recommended for its good yields and uniform size however, its flavour was variable.

Pumpkins

The 2003 pumpkin crop was impressive. Fruit numbers and quality were excellent. A variety of pumpkin types and sizes were evaluated. **'Prizewinner'** is recommended as the best giant pumpkin: compared to other large pumpkin cultivars tested, it had the best exterior skin color. **'Atlantic Giant'** had the biggest fruit however, exterior color ranged from pink to peach. **'First Prize'** is also recommended as a large pumpkin: however, its shape and size were not as uniform as **'Prizewinner'**.

Large Jack-o-lantern type pumpkins (approximately 9kg/fruit) recommended for yields and quality are **'Autumn King'** and **'Gold Gem'**. In the 5-6 kg class, **'Neon'** was outstanding due to its excellent fruit numbers, uniform size/shape and bright orange exterior. In that same weight category, **'Howdy Doody'**, **'Spirit'**, **'Gold Standard'**, **'Big Autumn'**, **'Gold Bullion'** and **'Autumn Gold'** are all recommended for their yields, uniformity and quality. **'Orange Smoothie'** is recommended as a small, uniform, attractive cultivar with high fruit numbers. **'Lumina'** was the best white pumpkin tested.

Flattened pumpkin types recommended for their excellent fruit numbers and dense flesh are **'Rouge Vif d'Etampes'** (reddish-orange exterior) and **'Autumn Buckskin'** (flesh color exterior).

Romaine Lettuce

Quality and yields of the early maturing romaine lettuce cultivars were excellent. Quality in the later maturing lettuce cultivars was not as good due to damage by aphids. The best main season cultivar recommended for its excellent flavour combined with yields is **'Green Forest'**. **'Romany'** (main season) had excellent yields and good flavour but tended to bolt early. Main season cultivars with good yields, quality and taste include, **'Blonde Maraichere'**, **'Green Towers'** (recommended previously), **'Parris Island Cos Select M.I.'**, **'Remington'**, **'Sunbelt'** and **'Winchester'**. **'Fresh Heart'**, **'Parris Island Cos'** and **'Tiberius'** are recommended as main season cultivars however, incidence of tip burn was higher than in other recommended main season cultivars. **'Winter Density'** and **'Claremont MTO'** had excellent early yields and flavour but head size was smaller than average. **'Baby Green'** and **'Little Gem Pearl'** are also recommended as good early cultivars with small heads but their flavour was bland.

Sweet Peppers

Despite heavy aphid infestation, pepper yields and quality were excellent. **'Scarlet King'** was outstanding as the earliest red cultivar with excellent yields and flavour. **'Red Dawn'**, **'Red Start'**, **'Socrates X3R'**, **'Takii Ace'**, **'Midway'** and **'King Arthur'** are early red cultivars recommended for their excellent yields and flavour. Mid-season red cultivars recommended for their yields, flavour and quality include **'Double Up'**, **'Early Niagra Giant'**, **'Lexington'** and **'Whopper Improved'**. Red cultivars that mature late in the season but are recommended for their green yield and flavour are **'Bennington'**, **'Staysgreen'** and **'Wizard X3R'**. **'Northstar'** had average red and total yields however, its flavour was outstanding.

Orange maturing pepper cultivars recommended for their excellent early harvest and flavour are **'Orange Sun'** and **'Oriole'**. **'LDPE 129'** is a midseason orange cultivar with excellent total yield and good flavour. **'Canary'** had excellent early yields of yellow fruit however, total yields were only average and its taste was below average. Of all cultivars tested, **'Giant Marconi'** had the best flavour, but the fruit were long and deformed: its yields were well below average.

Winter Squash

The original focus of the winter squash trial was to study spaghetti squash and other new squash

cultivars however, the trial expanded due to the generosity of seed companies. Of the spaghetti types tested, **'Vegetable Spaghetti'** (a previously recommended cultivar) was recommended for its good yields of large-sized fruit. **'Small Wonder'** is a spaghetti squash recommended for its excellent yields of small fruit. The best yielding acorn types evaluated were **'Celebration'**, **'Heart of Gold'** and **'Table Queen'**. **'Burgess Buttercup'** was the best buttercup cultivar tested. **'Plenty'** (butternut type) had excellent yields of large fruit. **'Bugle'** is recommended as a smaller butternut type squash with average fruit numbers although, **'Bugle'** had a high percent of unmarketable fruit. **'Delicata'** and **'Sugar Loaf'** were delicata types that performed well. **'Sugar Loaf'** was very uniform but the fruit were small. **'Delicata'** had larger fruit but their size and shape were variable.

Zucchini

Six yellow zucchini cultivars were tested along with one green cultivar that had performed well in previous University of Saskatchewan trials. All yellow cultivars except one outperformed the green comparison cultivar. Incidence of oversize fruit were much lower in the yellow cultivars. Excellent yields, uniform size and shape as well as relative ease of picking combined to make **'Golden Rod'** the best yellow cultivar tested. **'Gold Finger'** had the second best yields despite being more difficult to harvest. **'Gold Rush'** was the earliest yellow cultivar however, the tendency for green undersides produced high unmarketable yields. **'Eight Ball'** (a new round green cultivar) was evaluated. **'Eight Ball'** yields were average and the dense plant canopy hindered efficient harvest.

The detailed data on performance of the various cultivars tested in 2003 are presented in the attached bulletin

2003 CULTIVAR RECOMMENDATIONS

(* indicates that cultivar was previously recommended)

Brussels Sprouts

Brussels sprout harvest occurred after an early October snowfall. Cultivars were rated on yields, sprout quality and ease of removal. Quality and vigour of the crop were excellent in 2004. 'Sprouket' had the best combination of yields and quality as well as easy sprout removal. 'Icarus' had excellent yields and easy sprout removal however, its plants tended to be multi-stemmed. 'Adagia'*, 'Diablo' and 'RBS 463 F1' had good yields and quality although sprout removal was variable.

Cauliflower

Average yields for cauliflower grown in 2004 were down from the 2003 growing season, but the quality was excellent. The cool weather may have limited head size compared to the previous year. Cultivars recommended for their earliness, good quality and yields were 'Artica' and 'Somerset'*. 'Skywalker', 'Casper'*, 'Freedom'* and 'Concert' were the best main season cultivars with excellent yields and attractive heads. Main season cultivars recommended for their quality and yields include 'Candid Charm', 'Cassius'*, 'Cumberland'*, 'Phoenix'*, 'Shasta'* and 'Solvang'*.

Later maturing cauliflower cultivars recommended for their excellent yields and quality are 'Callisto'*, 'Guardian'*, 'Serrano', 'Sierra Nevada' and 'Ravella'. 'Graffiti' is recommended as an attractive purple headed cauliflower with excellent quality and average sized heads.

Sweet Corn

The 2004 growing season was not good for sweet corn. Most of the cultivars that had been recommended in previous university trials failed to produce any mature cobs. There were a few early cultivars that did manage to produce mature cobs however, the cool wet weather slowed the ripening process, resulting in poor taste ratings. Of the standard cultivars tested, 'Earlivee'* and 'Seneca Horizon'* produced marketable cobs. 'Envoy' (bicolour), 'Polka' (bicolour), 'Headstart' (yellow) and 'Sunray'* (yellow) are sugar enhanced cultivars that had more than 50% of their cobs harvested.

Of the twenty nine supersweet cultivars tested, 'Sweet Chorus'* (bicolour), 'GSS 3486'* (yellow) and 'Northern Supersweet'* (yellow) had some mature cobs.

Garlic

Winter survival was variable between cultivars. Softneck types generally had better survival however, bulbs were smaller than the stiffneck types. Average marketable yields for stiffneck types were higher than for softneck types.

Of the softneck types evaluated, 'Spanish' is recommended as the best early cultivar with excellent yields. 'Vesey's', and 'FLF40'* had good yields however, the cloves were small. 'Early Silverskin' had excellent yields however, outer cloves tended to be outside the main bulb: this resulted in many unattractive but still marketable bulbs.

Of the stiffneck types tested, 'CGP Center Core' and 'Morado Red' had excellent emergence. 'Morado Red' bulb weight was only 50% of the 'CGP Center Core' bulb weight. 'M&M Stiffneck'* and 'Music'* are recommended for their good yields of large bulbs.

Romaine Lettuce

The 2004 lettuce crop was attractive, vigorous and healthy. Yields were good and quality was excellent. 'Claremont MTO'* and 'Sunbelt'* are recommended for their combination of earliness, yields and good-sized heads. 'Little Gem' is also recommended as a good early cultivar but its heads are small. Main season cultivars recommended for their excellent flavour and yields include 'Beretta', 'Big Country', 'Blond Maraichere'*, 'Freckles', 'Green Forest'*, 'Olga' and 'Valmaine'. Main season cultivars recommended for their yields and good flavour include 'Conquistador', 'Jericho', 'Paris Island Cos'*, 'Paris Island Cos 318' and 'Remington'*.

Peas

Although pea yields were slightly below average, the cool cloudy weather appeared to curtail the aphid infestation that had been a problem in 2003. The best early cultivar with good flavour was 'Spring'*; yields however, were below average. The best yielding main season cultivars with good flavour were

'Bolero', 'Dual', 'Freezer 69', 'Galena*', 'Novella', 'Novella Improved'* and 'Straight Arrow'*. Slightly later maturing cultivars recommended for their excellent yields with acceptable flavour include 'Frosty', 'Homesteader' and 'Wando'*.

Bell Peppers

Pepper yields and especially yields of red mature fruit were below average in 2004. The earliest cultivar tested was 'Redstart'* which had red pepper yields well above the season average. 'Scarlet King'* and 'Takii Ace'* also had excellent red pepper yields however, their yields of mature green fruit were average or lower. Pepper cultivars that had excellent flavour and green yields were 'Defiance', 'Fat 'n Sassy', 'Jumbo Sweet', 'Labrador' and 'Queen'. Cultivars recommended for their excellent yields and average flavour include 'Early Sunsatation', 'Olympus', 'Orion', 'Revolution', 'Socrates X3R'*, 'Super Heavyweight' and 'Wizard X3R'*. 'Olympus' and 'Super Heavyweight' produced very large fruit.

Pumpkins

The main objective of the pumpkin trial was to find a good yielding, good quality early jack-o-lantern type pumpkin. Some smaller cultivars were also tested that would be ideal for school visits to a grower's pumpkin patch. Whereas the sunny, warm season of 2003 produced an excellent high quality pumpkin harvest, the 2004 growing season helped to select pumpkin cultivars that would do well in a much cooler season.

Of the small sized (<5.5kg) cultivars tested, 'Mystic Plus' was the best cultivar with excellent yields, quality, uniformity and strong handles. 'Neon'* is recommended for its excellent bright orange colour, yields and quality. 'Gold Dust', 'Orange Smoothie'* and 'Shootime' all had excellent fruit numbers and quality. 'Jack O Lantern' was early with good yields, however its exterior colour tended to be variable. 'Touch of Autumn' is a mini-pumpkin recommended for its excellent fruit number and uniformity.

Medium sized (5.5-11kg) pumpkins recommended for their yields, quality and earliness are 'Triple Treat', 'RPX 03515' and 'New Rocket'. 'Seneca Longface' is also an early cultivar however its yields were only average. Other medium sized fruit recommended for their good yields and quality include 'Funny Face', 'Racer', 'Rocket', 'Sorcerer' and 'Spirit'*.

Of the early large fruited (11-14kg) cultivars tested, 'Big Autumn'* was the best performing cultivar with 100% orange fruit and excellent yields. 'Appalachian' and 'Magic Lantern' also produced excellent yields. 'Rouge Vif d'Etampes'* is recommended as a large flat shaped pumpkin with excellent yields.

'Harvest King' was the best early extra large (14kg+) sized pumpkin. 'King Midas' was the best yielding extra large pumpkin.

Radishes

Although the cool weather of 2004 appeared to be excellent for radish production, the 2004 radish crop had a high percentage of roots that bolted prior to harvest. There was a week of very warm weather just prior to the main harvest however, one would not have expected that weather to have that much influence on bolting. 'Tinto' and 'Raxe' had the best combination of yields and flavour. 'Crunchy Royal', 'Fireball'* and 'Sora'* are recommended for their very good flavour and good yields. 'French Breakfast', 'Galahad', 'Mister Red', 'Monica' and 'Rebel'* had excellent yields with average flavour. 'Easter Egg II' (a radish with purple, white or red roots) is recommended for its uniqueness and attractiveness along with its good yields and flavour.

Spinach

The 2004 spinach crop was beautiful. Most cultivars performed well and the cool weather helped minimize bolting. The highest yielding cultivar with the best flavour was 'Cypress' although its leaves tended to be smaller than other cultivars. 'Bloomsdale', 'Tyee' and 'Whale' combined very good flavour and yields. 'Bloomsdale' however, was one of the earlier bolting cultivars. 'Melody' and 'Skookum'* are recommended for their good flavour and very good yields.

Winter Squash

Fifty six cultivars of various types of squash were grown in 2004. The cool season delayed maturity and reduced yields of many cultivars. 'Table Ace'* was the earliest acorn type squash with excellent yields. 'Tablestar' and 'White Cloud' are acorn types recommended for their excellent numbers of smaller-sized fruit. 'Cream of the Crop'* (a late acorn type) is recommended for its excellent yields.

'Festival' and 'Harlequin' are flat acorn types with good yields of attractive, green and yellow mottled fruit.

The majority of the buttercup types tested did well in 2004. 'Sweet Meat' had excellent yields of large fruit. 'Ambercup'* and 'Sweet Mama'* are recommended for their good yields and quality. 'Autumn Cup', 'Black Forest', 'Sunshine' and 'Super Delight' are all recommended for their good yields. 'Gold Nugget' and 'Orange Dawn' are smaller sized orange coloured buttercup types recommended for their good fruit numbers.

Of the six butternut squash types grown in 2004, 'Casius' is recommended as a larger fruited cultivar with good yields. 'Early Butternut'* is recommended as a smaller sized butternut type.

'Sweet Lightning' was the best delicata-type squash tested: it had excellent yields and a small seed cavity. 'Stripetti'* was the best large fruited spaghetti squash grown. 'Small Wonder'* is recommended as a smaller spaghetti-type with excellent yields.

Zucchini

Seven yellow zucchini types were grown with two green types that had performed well in previous vegetable trials at the University of Saskatchewan. The majority of the yellow cultivars outperformed the green cultivars. Because the yellow fruit are easier to see than the green fruit, the yellow cultivars had less oversized fruit as compared to the green cultivars. 'Butterstick' was the highest yielding yellow zucchini: some of its fruit were unmarketable due to its warty skin surface. 'Golden Rod'* is also recommended for its good yields however fruit tended to be brittle at harvest time.

RECOMMENDED VEGETABLE CULTIVARS

Based on Cultivar Trials at the
Department of Plant Sciences,
University of Saskatchewan, 1989-2004



(Numbers before cultivar name indicate the year(s) that cultivar was recommended. Letters in brackets after the cultivar name indicate the seed company from which the seed was obtained: see 'Seed Sources' for full address. Seed may be available from other sources.)

BASIL

98 Dark Opal (EFG)	98 Italian Large Leaf (Os,RUPP)	98 Spicy Globe (ST)
98 Green Ruffles (Rich)	98 Purple Ruffles (J, ST)	

BEANS

<i>French Filet</i>		<i>Green</i>	
96 Argus (CS)	95 Delinel (T+M,WDM)	95 Dandy Green(T+T)	96 Matador (Sem,Ve)
95 Belna (CS)	96 Montano (WDM)	00 Diamant (CS)	96 Strike (T+T,ST)

Yellow

00,01 Eureka (NOR)	01 Golden Rod (SW)	00 Gold Rush (EFG,ST)
00,01 Fruidor (CS)	00,01 Gold Mine (ST)	

BEETS

98 Action (J)	99 Metaro (Card)	98,99 PX1289 (Sem)
99 CXA 95951 (ACS)	98 Moneta (BJ,WDM)	98 Red Ace (EFG,ST)
98,99 Detroit Supreme(ST)	98,99 Pablo (Ve,BJ)	98,99 Rosette (Sem)
99 Early Wonder (EFG,J)		98,99 Scarlet Early (Sem)

BROCCOLI

91, 94,01 Arcadia (AC,NOR,SAK)	01 Durango (SW)	95,00 Major (Sem,SW)
02 Belstar (BJ,WDM)	94,00 Early Dividend (T+T,WDM)	95,00,01 Marathon (NOR,Os,RD)
01,02 Captain (ST)	94,97,00,01 Emerald City (SAK,WG)	01 Nomad (WG)
02 Centauro (T)	95,00,01 Eureka (ST)	94, 95,00-02 Patriot (SAK)
02 Centura (RO)	94,95 Excelsior (HM)	01 Sakura TSX-7 (TOK)
01,02 Coronado (BJ)	01,02 Lucky (BJ,NOR,SW)	01,02 Titleist (Sic,T)

BRUSSELS SPROUTS

03,04 Adagia (NOR)	04 Icarus (T+M)	04 RBS463 F1 (Os)
04 Diablo (BJ,SW)	03 Jade Cross (WDM)	04 Sprouket (NOR)
93,94 Golfer (BJ)	94,03 Oliver (RO, J,WDM)	

CABBAGE

<i>Early</i>	<i>Green</i>		<i>Storage</i>
	<i>Mid-season</i>		
92 Balbro (ST,WG)	97,9 Almanac (CS,BJ,SW)	97 Pacifica (RD)	92 Bartolo (SW,WG)
92 Copenhagen Market (L,N)	98 Bobcat (RD)	97 Panther (RD)	92 Lennox (SW)
97,98 Dynamo (J,RD,Ve)	91,9 Bravo (HM,WG)	97 Primax (J)	97 Little Rock (Sic)
98 Fast Vantage (SAK,WG)	98 Cecile (BJ,SW)	98 Survivor (ST)	92 Masada (WDM)
98 Parel (BJ,WG)	98 Corsar (PALM)	98 Vantage Point (RD)	91 Multikeeper (ST)
	98 Gideon (BJ)	97 Winner (ST)	97 Rio Verde (RD)
	98 Greenboy (SAK)	98 Zennith (WG)	
	97 Headstart (WG)		

<i>Late</i>			<i>Red</i>	
92 Bartolo (DOM,SW,WG)	98 Minicole (NOR, Ve)	95 Primero (Os,WDM)	94 Red Rookie (SAK)	
90, 92 Lennox (NOR,SW)	97 Morris (BJ)	94,95 Red Acre (ACS,LIN,Os)	94 Regal Red (BJ)	
97 Little Rock (Sie)	92 Multikeeper (ST)	95 Red Jewel (SAK)		
92 Masada (WDM)	97,98 Rio Verde (RD)			

CAULIFLOWER

04 Artica (Os,RD, WG)	03,04 Freedom (ST)	94,97 Rushmore F1 (Sem,RUPP)
03 Baldo (NOR)	03 Freemont (EFG)	93,94,04 Serrano (MF, RO,ST)
03,04 Callisto (RD)	04 Graffitti (ST)	94,03,04 Shasta (RO,WCS,WG)
04 Candid Charm (RD,SAK)	03,04 Guardian (NOR)	04 Sierra Nevada (NOR)
03,04 Casper RZ (ZW)	94,97 Incline (SAK,RUPP)	04 Skywalker (BJ,SW)
03,04 Cassius F1 (BJ,SW)	03 Lateman (BJ,SW)	03 Solvang RZ (ZW)
04 Concert (WCS,WG)	94,97,03 Minuteman (DOM,NOR,Sem)	03 Somerset (WG)
03,04 Cumberland (ST)	03,04 Phoenix (ORS,RD,WG)	03 Symphony (RO,Sie)
03 Drummond RZ (ZW)	04 Ravella (Sie,WG)	03 Wentworth (ST)

CARROTS

<i>Nantes</i>		<i>Danvers</i>	<i>Imperator</i>
96 Bolero (EFG,ST,VIL)	96 Danvers Half Long (EFG,LIN)	96 Apache (Sie)	
97 Favor (CS)	92 Kamaran (SW)	92 A-Plus (ST)	
96 Forto Selection (WDM)	97 Kuroda Improved (TOK)	97 Artist (J)	
97 Mokum (BJ,J)	91 Napoli (SW)	96 Choctaw (Sie, SS)	
96 Nantes Coreless (T+T)	96,97 Royal Chantenay (T+T, EFG)	97 Eagle (SS,WG)	
97 Nantes Half Long (LIN)		97 Nandrin (BJ,SW)	
96 Napa (BJ, DOM,SW)			
97 Napoli (Ve, NOR)			
96,97 Presto (DOM,VIL)	97 <i>Imperator Nantes</i>		
97 Sytan (CS)	97 Kamaran (BJ,NOR)		
97 Touchon (EFG,LIN)	97 Primecut (Os)		

CELERY

00 Green Bay (Py)	99,00 SSC - 4 (SSC)	89,99,00 Ventura (NOR,WG)
00 Picador (ST)	89,99 Starlet (OT)	99 Victoria (T+M)
	00 Tango (BJ,SW)	

CORN

<i>Standard</i>		
90 Butter Vee (EFG)	97,00,01 Early Sunglow (BUR)	96 Polarvee (MF)
94,00,04 Earlivee (CK,NOR,Ve)	90,91,93,95- Seneca Horizon (ABN,BUR,EFG)	02 Sundance (HM)
	97,99,00,03,04	
<i>Sugar Enhanced</i>		
94,96 Amaize (CK,T+T)	00,02 Mystique (ST,CK)	97,00,03 Seneca Pronto (SH,WG)
96,97 Ambrosia (CK,SW)	95-97,00 Native Gem (RUPP)	99 Seneca RXB 6401 (SH)
02,03 Blaze (CK,LIN)	91 Peaches & Cream (DOM)	00 Seneca Spring (NOR,Sie)
02 Bojangles (CK,DOM,SW)	04 Polka (CK,NOR)	98,00,02,03 Seneca Tomahawk (ST,Sem,Ve)
00 Bon Appetit (MM,Sie)	97,00,01 Precious Gem (MM,ST,Ve)	97,98 Sensor (Sem,SW)
00 Chippawa (ST)	96,99,00 Precocious (EFG,WG)	99,00 Spring Treat (MM,NOR)
96,00,03 Cochise	03 Providence (DOM,RO,SW)	99,00,02,04 Sunray (MM)
00,01,03 Delight Bicolor (NOR)	00 PSR 9312255 (Sem)	02 Sweet Cheeks (HM)
01,03 Early Choice (SW)	00 PSR 9315357 (Sem)	96-98,02 Sweet Rhythm (HM,Ve)
96 Early Sweet (NOR)	00,01 PX 6706 (Sem)	01 Sweet Symphony (HM)
04 Envoy (MM,NOR)	00 PX 8005 (Sem)	99 SX 6101 (SH)
00 EXP 10332 (MM)	99 Quickie (NOR,Ve)	99 SX 6602 (SH)
00 Friendship (MM)	01 Rapport (MM)	03 Temptation (WG,SW)
96,98-9,03 Geronimo (EFG,ST)	96-98,00 RXB 6401 (SH)	99,00 Trinity GP (CK,NOR,ST)
02,03 GH 7006 (RO)	93-95,98,99 Seneca Dawn (AC, SH)	96 4B0182 (SH)
98,00,01 Grant (EFG)	97,00 Seneca Daybreak (SH,Sie,WG)	97,98 4G0007 (SH)

99 HMX 5346E (HM)	97 Seneca Explorer (SH)	02.03 10524 (MM)
99 Jester II (ST)	96-98.00 RXB 6401 (SH)	02.03 10525 (MM)
01.03 Luscious TSW (MM,NOR)	96 RXW 6801 (SH)	02.03 10331 (MM)
94,95,97 Lyric (CK,T+T)		
<i>Supersweet</i>		
98 Accolade (CK)	00 GS 175A (STX 9174) (ST)	00 Summer Sweet Var #6802 (AC)
00 ACX 728 (AC)	00 GSS 3486 (RO,WG)	00 Summer Sweet Var #7100 (AC)
00 ACX 735 (AC)	99 Impulse (RO)	98,99 SV 7004 (SH)
99 BSS 6284 (RO)	00 Indian Summer (HM,ST)	98-00.03 Sweet Chorus (HM)
99-03 Candy Corner (HM)	02 Madonna (Sem)	98 Sweet Rhythm F1 (HM)
95,97,00.02 Confection (HM)	03 Mirai 301BC (Sie,SW)	02.03 Sweet Tooth (WCS)
91 Crisp N Sweet 711 (BUR)	03 Mirai 002 (Sie,NOR)	97 Swiftly (HM)
96-98 Eagle (RUPP)	95,96,99.00 Northern Xtra Sweet (EFG, T+T)	97 Uprise F1 (HM)
96-98.00 Early Xtra Supersweet (EFG)	90,92,95- Northern Super Sweet (ST,EFG)	95, 96 Victor (FM)
98.00 Fortune BC (ST)	98.00	03 Yumeno (SAK)
02 Gourmet Sweet 275A (SW)	03 Obsession (NOR,SW)	03 277A Xtra Tender Brand (SW)
02 Gourmet Sweet 277A (SW)	98 Princeton (Sem)	03 278A Xtra Tender Brand (SW)

CUCUMBERS

Pickling

99 Amira (EFG)	92,98,99 Fancipak (Park,Sem,Sie)	93,98,99 Northern Dawn (EFG)
99 Calypso (EFG,RUPP)	99 Gherkin (T+M)	99 Patton Classic (SS)
98 Cool Breeze (DOM,MF,WDM)	93 Homemade Pickles (T+T)	98 P97 (HAN)
98 Cross Country (Ve,ST)	98,99 Kfir (PALM)	99 Spear It (WG)
99 Eureka (OT,ST)	93 Morden Early (LIN)	99 Wellington (RUPP,Sem)

Slicing

00 Amira (DOM,EFG)	92, 93.00 Jazzer (ST)	00.01 Raider (Ve)
00 Dasher II (EFG,UPP,WG)	00.01 Lightning (NOR)	93 Salad Bush (LIN)
00.01 Fanfare (DOM,WDM)	00.01 Marketmore 76 (WDM)	92,00.01 Speedway (ST)
00.01 Genuine (J,KY)	00.01 Natsuhikari (TOK)	01 SRQ 2389 (SS)
01 General Lee (HM,ST)	01 Olympian (J, WH)	93.00 Straight 9 (WH)
01 Indio(ST)	00.01 Panther (RUPP)	00.01 Ultra Pak (ST)
01 Indy (SW)	93 Potluck (T+T)	00.01 Vertige (DOM,NOR)

EGGPLANT

01 Aubergine (NOR)	02 Classic (HM)	02 Imperial Black Beauty
02 Black Beauty (WDM)	01 Dusky (WCS)	02 Night Shadow (ST)
02 Black Bell (J)	02 Ghostbuster (HM,SW)	02 Santana (NOR,SW)
02 Blacknite (ST)		

HONEYDEW & CRENSHAW MELONS

92 Passport (NOR,WDM)	98 Superstar (HAN)
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KOHLRABI

01 Early White Vienna (EFG)	02 Kongo (DOM,BJ)	02 Winner (J,T,WG)
02 Express Forcer (T)	02 Korist F1 (BJ)	01 White Vienna (Ve)
02 Kompliment (BJ)	02 Rapid Star (ST)	

LETTUCE

<i>Bibb</i>	<i>Head</i>		<i>Romaine</i>
93 Carmona (EZ) - red	01 El Dorado (WG)	03 Baby Green (WCS)	97 Ideal Cos MI (ST)
92,93 Mantilla (AC,Sem)	01 Gemini (SAK)	04 Beretta (SSC)	04 Jericho (J)
92 Summer Bibb (AC,Sie)	00 Great Lakes (KY)	04 Big Country (SIE)	04 Little Gem (Sn,WG)

90 Great Lakes 118 (Sem)	04 Big Green (SIE)	03 Little Gem Pearl (Ve)
00 Great Lakes 659(WDM)	03,04 Blonde Maraichere (WDM)	04 Olga (WDM)
01 Tiber(Ve)	03,04 Claremont MTO (J)	03,04 Paris Island Cos (Ve)
	04 Conquistador (WCS)	04 Paris Island Cos 318 (SW)
	90,97 Cos (EFG, EZ)	03 P.I.C. Select M.I. (NOR)
	04 Freckles (T+M)	03,04 Remington (SSC,Ve)
	03 Fresh Heart (ORS)	97 Riva (CS)
	97 Genecorp Cos (Sem)	91,98 Romulus (Sem,T+T)
	03,04 Green Forest (Sie)	03 Tiberius (ZW)
	98 Grand Teton (Sem)	04 Valmaine (WCS)
	91,03 Green Towers (HM,SW)	03 Winter Density (J)

LEEEKS

96,97 Albinstar (EZ)	96 Jersey (ST, Sem)	97 Primor (VIL)
97 Autumn Giant (WDM)	97 Kilma (Sem,WG)	96 Startrack (EZ)
96,97 Giant Musselburgh (Ve)		97 Titan (EFG)

MUSKMELONS

91,98 Alaska (Sem,EFG)	90-92,97-99 Earligold (J,Ve)	91 PSX 88122 (Sem)
97 Albers (TER)	97,98 Earliqueen (J,ST)	92 Sweet Granite (J)
97 Ambrosia (RUPP,Sem)	97,99 Fastbreak (Sem,ST,WDM)	97 Sweet 'n Early (RUPP)
97,98 Athena (J,ST)	97 Firmo (CS)	97 Superstar (Os,WG)
91 Burpee Hybrid (ST)	97 Grido (CS)	98 Touchdown (Sem)
98 Cesar (CS)	91,98,99 Pulsar (WDM)	97,98 Venice (TOK)

ONIONS

<i>Spanish</i>	<i>Red</i>	<i>White</i>
96 Holy Moly (WEST)	94,98,99 Mars (EFG,NOR,ST,SW)	99 Nevada (Card)
96 Kelsae Giant (EFG)	93, 94,97 Mercury (RUPP)	93 New Mexico White (SS)
98 Riverside Sweet Spanish (ST)	99 Red Beauty (BJ,DOM,NOR)	94 Sterling (Sem)
96 Vision (DOM,NOR,Sem)	97,98 Red Burgermaster (EFG)	94 White Delite (CK)
98 Yellow Sweet Spanish (EFG)	99 Red Eyes (BUR)	
	<i>Yellow</i>	
91 Benchmark (Sem)	99 First Edition (WCS)	99 Spectrum (SS)
99 BGS 156 (BJ)	99 Frontier (NOR,ST,T)	98,99 Teton (NOR,Sem)
99 Candy (LIN,OT)	92 Norstar (ST)	99 Uniglobe 100 (Sem)
97,99 Copra (BJ,EFG,NOR)	99 Prince (BJ,NOR,SW)	98 Vision (NOR,Sem)
92 Daytona (Sem,SW)	98 Quantum (LIN,Sem)	98 Yellow Globe (EFG,LIN)
99 Festival (BJ,DOM)		
	<i>Storage</i>	
00 Mars (EFG,NOR,ST,SW) - red	95 Athos (VIL) - yellow	00 Mustang (BJ,SW) - yellow
98 Mercury (RUPP) - red	00 BGS 156 (BJ) - yellow	00 Nice Pake GP (NOR) - yellow
00 Red Beauty (BJ,DOM) - red	98,99 Cannon (BJ) - yellow	98 Norstar (ST) - yellow
95,98,99 Red Burgermaster(EFG) - red	99 Cavalier (Sem) - yellow	99 Prince (BJ,SW) - yellow
	93 Columbia (FM) - yellow	99 Quantum (LIN) - yellow
95 PSX 91988 (Sem) - white	93,98,99 Copra (EFG,NOR) - yellow	00 Santana (BJ,SW) - yellow
97 Vision (Sem) - Spanish	00 Cortland (BJ,SW) - yellow	99 Torque (EFG) - yellow
	00 Frontier (NOR,ST,T) - yellow	00 Uniglobe 100 (Sem) - yellow
	00 Millenium (ST,SS) - yellow	99 Yellow Globe Danvers (EFG)

ORIENTAL GREENS

<i>Pak Choi</i>	<i>Michihili</i>	<i>Greens</i>
00,01 Brisk Green (KY)	96 Banko (BJ,DOM,NOR)	01 Edible Chrysanthemum (WCS)
00 Joi Choi (DOM,KY,Sie,WG)	95 Jade Pagoda (ST)	00 Early Mizuna (T, WDM)
96 Pak Choi (EFG,RUPP)	96 Monument (NOR,ST)	00 Garland (WDM)
		01 Garland Round Leaf (ST)

Mustard Greens

01 Jiangxi
01 Santoh Round (T)

Napa

00,01 Blues (Sie,T)
95, 96 Nerva (EZ)
96 Optiko (BJ,DOM,NOR)
95 Spring Flavor (Sem,Sie)
00,01 Yuki (ST)

00,01 *Komatsuna Oriental Greens*(WCS)

01 Kyoto Mizuna (WCS)
01 Kyoto Mizuna Green (TOK)
01 Perilla Redleaf (ST)

ORNAMENTAL CORN

96 Red Stalker (WDM,WG)

95, 96 Fiesta (SW,WDM,WG)

95 Wampum (J)

PARSNIPS

97 Andover (LIN)

98 Harris Model (BUR, RUPP)

98 Javelin (RUPP,WG)

97 Arrow (BJ,DOM,NOR)

PEAS

Snap

04 Bolero (EFG,WG)

03,04 Galena (WCS)

03,04 Novella Improved (WDM)

94 Cascadia (RUPP)

94 Green Arrow (DOM,WDM)

93 Olympia (RUPP)

94 Denise (Br)

04 Homesteader (EFG)

93,04 Spring (EFG,Sem,T+T)

04 Dual (Ve)

93 Lincoln (ST)

03,04 Straight Arrow (WDM)

03 Early Frosty (RUPP)

93 Maestro (RUPP)

94 Sugar Snap (PL,RUPP)

04 Freezer 69 (EFG)

03 Maxigolt (J)

03,04 Wando (Ve)

04 Frosty (Ve)

04 Novella (EFG)

Snow

00,01 Oregon Sugar Pod II (DOM,NOR)

00,01 Sugar Ann (DOM)

00 Sugar Lace (RO,T+T)

01 Super Sugar Snap (Ve)

PEPPERS

Bell

89, 90 Big Bertha (ABN, BUR,Sem)

95 Peppouri Orange (OT)

94, 95 Banana Supreme (T+T)

03 Canary (ST)

04 Queen (SW)

00 Hot Spot X3R (RUPP)

04 Defiance (NOR)

03 Red Dawn (ST)

89 Hungarian Wax (ST)

03 Double Up (SAKSW,WG)

04 Red Knight X3R (J,ST)

04 Supersweet Banana (DOM,ST)

03 Early Niagra Giant (ST)

03,04 Redstart (ST)

04 Early Sunsation (NOR,RUPP)

04 Revolution (ST)

04 Fat n Sassy (EFG)

03,04 Scarlet King (ST)

Cubanelle

03 Giant Marconi (DOM,NOR)

03,04 Socrates X3R (NOR,ST)

99 Crimson Hot (ST)

04 Golden Belle (WCS)

89, 95 Staddon's Select (Ve)

95 Elegant Red (EG)

04 Jumbo Sweet (T,T+M)

03 Staysgreen (ST)

00 Hot Portugal (ST)

03 King Arthur (ST,WDM)

95 Summerset Brand #860 (OT)

95 Italian Gourmet (Park)

04 Labrador (J)

04 Super Heavyweight (EFG)

95 Northluc (EG)

03 LDPE129 (SWOR)

03 Takii Ace (T)

99 Super Hungarian Hot (ST)

03 Midway (EFG)

95 Tequila (EZ,SW,WG)

03 North Star (DOM)

95 Tomi (VIL)

04 Olympus (SW)

94 Valencia (RO,WDM)

03 Orange Sun (Ve)

95 Vidi (VIL)

03 Oriole (ST)

95,03 Whopper Improved (Park, Ve)

04 Orion (DOM)

03,04 Wizard X3R (ST,SW)

Hot

99,00 BN981708 (Sem)

99,00 Golden Cayenne (ST)

00 Nour (CS)

95 Cayenne Long Slim (EFG,RUPP)

00 Grande (Sem,WG)

00 P853 F1 (CS)

95,99,00 Cherry Bomb (J,Sem,SW)

00 Hot King (HAN)

00 Ring of Fire (ST)

99 Chili Grande (ST)

00 HP 75 (HAN)

99,00 Super Jumbo Jalapeno (ST)

00 CLX 1521 (CS)

95 Inferno (LIN,RUPP,Sem)

99 Tampico Fiesta (Sem)

99 Delicias (J,Sie)	99 Jalapeno X005 (ORS)	00 Thai Dragon (T+M)
95 Firenze (RO)	95 Mitla (Sem,SW,WG)	00 Viking (HAN)
00 First Prize (HAN)	99,00 Mucho Nacho (T+T)	95 Volcano
94, 95 Garden Salsa (Sem, EFG)	00 New Mexico Chili (BUR)	00 VTR Hybrid #7 (WG)
	00 Nostalgia (HAN)	00 Yellow Dagger (NOR)

PUMPKINS

Carving

04 Appalachian (NOR,RUPP)	03 Gold Standard (RUPP,Sie)	04 Racer (J)
03 Autumn Buckskin (SW)	03 Howdy Doody (SW)	04 Reliable (AC)
03 Autumn Gold (BUR,EFG)	04 Jack O'Lantern (EFG,RUPP)	04 Rocket (J,Ve)
03,04 Autumn King (ST,SW)	04 Jack Of All Trades (RUPP,WCS)	93,03,04 Rouge Vif D'Etampes (J,WCS)
03,04 Big Autumn (BUR)	04 King Midas (Sie)	04 RPX 03515 (RUPP)
93 Big Moon (RUPP)	03 Lumina (BUR,EFG,Sie)	04 03RPX 764 (RUPP)
04 Cotton Candy (RUPP)	04 Magic Lantern (Os,WG)	04 Schoolltime (DOM,NOR)
03 First Prize (SW)	04 Mystic Plus (ST,WG)	04 Seneca Longface (WDM)
04 Funny Face (Ve)	03,04 Neon (Sie,SW,WG)	04 Sorcerer (ST)
03 Gold Bullion (SW)	04 New Rocket (J)	92-3,03-4 Spirit Hybrid (EFG,RUPP,SEM)
04 Gold Dust (RUPP)	03,04 Orange Smoothie (DOM,NOR)	04 Touch of Autumn (RUPP)
03 Gold Gem (SW)	03 Prizewinner (J,T+T)	04 Triple Treat (RUPP)

Pie

92,93 Baby Bear (J, LIN)	93,03 Rouge Vif D'Etampes (J)
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RADISHES

04 Crunchy Royale (ST)	04 French Breakfast (EFG)	97,04 Rebel (BJ,NOR,Os,SW)
96 CXE 3620 (ACS)	04 Galahad (ST)	97 Sora (WDM)
97 Easter Egg (EFG,J,WDM)	04 Mister Red (ST)	97 SRA 1501 (SAK)
04 Easter Egg II (DOM,WCS)	04 Monica (WG)	96,97 SRA 4504 (SAK)
96,97,04 Fireball (SAK,SW)	04 Raxe (WDM)	04 Tinto (SW,WG)
04 French Breakfast (EFG,RUPP)		

RUTABAGAS

94 Golden Ball (ABN)-orange/yellow color
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SPINACH

94 Avon (ACS,RUPP)	04 Cypress (ST)	94 Spanda (BJ)	95 Springfield (BJ)
04 Bloomsdale (EFG)	04 Melody (ST,Ve)	95 Spinnaker (BJ)	04 Tyee (EFG)
95 Bolero (Sem)	94,04 Skookum(WCS)	95 Spokane (BJ)	04 Whale (J,Sn, ZW)

TOMATOES

<i>Early</i>		<i>Mid-Season</i>		<i>Late</i>			
95,00,02	Cabot (Ve)	02	Celebrity (EFG,LIN)	02	BHN 399	02	Pilgrim (RÜPP,WG)
95,00,02	Duchess (KY,Ve)	02	Matina Organic (WDM)	02	BHN 537	01	Siletz (WCS)
94,00	Oregon Spring (EFG,J)	02	Sunbeam (SW)	02	Grace (KY)	94,00	Sunbrite (Sem,SW)
95	Pik Red (EH,WH)	02	Sunchief (ST,SW,WG)	02	Hy-Beef 9904 (ST)	02	Sunmaster (RO)
02	Starfire (EFG,T+T)	02	Sunrise VF (ST)	02	Jackpot (HM)	94	Sunpride (NOR,Sem)
95	Springset (ABN)	95	Swift (EFG)	02	Lemon Boy (ST)-yellow	02	Sunsation (SW)
		01,02	Taxi (J)-yellow	02	Miracle Sweet (EFG,NOR)	01,02	Super Fantastic (WCS)
				02	Mountain Fresh (WDM)	02	Ultra Sonic (ST)
<i>Paste</i>							
99	BOS 8033 (Sie)	00	Early Cascade (J)	00	Golden Bell (EG)	00	Roma VF (WDM)
00	BOS 22351 (ORS)	99	EG 106 (EG)	99	La Rossa (RO)	99	Spectrum 882(OT)
00	Classica (T+T)	00	02 EG 5 (EG)	99	Mama Mia (T+T)	00	Viva Italia (WDM)
00	Daiquiri (Sie, ST)	99	Elko (CS)	99,00	Monix (WCS)		

TURNIPS

02 Purple Top White Globe (EFG)	01,02 Royal Crown (NOR,SW,T+T)	01,02 Royal Globe II (AC)
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WATERMELON

Red Flesh

99 309 Diamond EG (EG)	98 Fine Light (KY)
98 Arriba (Holl,RUPP)	98 Gal (PALM)
98 Au Producer (WH)	98 KH (HAN)
98 Cham (HAN)	98 Sangria (Sie,WDM)
99 Country Home (HAN)	99 Southern Crimson (KY)
99 Crimson Early (EG)	92 Sweet Favorite (DOM,WG)
98 Dulce Verde (PALM)	

Yellow Flesh

92 Gold Baby (ABN)
99 Ace Phoenix (EG)

WINTER SQUASH

Acorn

04 Autumn Prince (SSC)
03 Celebration (SW,RUPP)
95,97,04 Cream Of The Crop (RO,ST)
96 Early Acorn (Sem,ST)
04 Festival (WCS)
04 Harlequin (RUPP)
96,97,03 Heart of Gold (NOR,WDM,RO)
97,04 Table Ace (HM,J,Sem,WDM)
04 Table Star (RUPP,SW)
03 Table Queen (EFG,WDM)
96,97 Taybelle (Sem,ST)
04 White Cloud (RUPP)
97 XPH 1755 (Sem)

Buttercup

96,04 Ambercup (Ve)
04 Autumn Cup (RUPP)
04 Black Forest (J)
03 Burgess Buttercup (WG,WDM)
95,97 Buttercup (EFG,LIN)
95 Early Price (KY)
97 Eastern Rise (KY)
97 Fairy (KY)
04 Gold Nugget (WCS)
95 Nutty Baby (ABN)
04 Orange Dawn (Os,RUPP)
97 Phoenix (KY)
04 Sunshine (J)
04 Super Delight (ST)
96,04 Sweet Mama (ST)
04 Sweet Meat (WCS)

Delicata

95 Delicata (DOM,J)
97,03 Sugar Loaf (BUR,SW)
97 Sweet Dumpling (J,SW)
04 Sweet Lightning (RUPP)

Ornamental

95 Turk's Turban (BUR,WDM)

Scallop

96 Sunburst (J,WDM)

WINTER SQUASH (continued)

Butternut

96 Burpee's Butterbush (WDM)
97 Butternut (ABN,CA)
04 Casius (RO,Sie)
95-97,04 Early Butternut (LIN, Sem,WG)
03 Plenty (RO)
95,97 Ultra Butternut (ST)

Spaghetti

95,97 Pasta Spaghetti (LIN)
03,04 Small Wonder (NOR,ST)
95,97 Spaghetti (J)
97,04 Stripetti (ST)
95,96,03 Vegetable Spaghetti (EFG, LIN)

ZUCCHINI

Green

97,98 Ambassador (Sem,WDM,WG)	98 H.N. Zucchini (HN)	97,04 Spineless Beauty (NOR,ST)
98 Chongma (HAN)	98 Jemmy (KY)	91 Super Select (ST)
97 Dividend (Os)	97 Onyx (Ve)	

Yellow

04 Butterstick (SW)	03 Gold Finger (ST)	03,04 Golden Rod (WDM)
98 Golden Zucchini (RUPP)		

Project Related Extension Activities for 2001 to project completion (March 2005)

April 2001 - trial results reviewed at Saskatchewan Vegetable Growers Annual Meeting

April 2001 - trial results presented at GardenScape
April 2001 - trial results presented to growers at SDAF (Saskatoon) short course
July 2001 - Saskatchewan Irrigation Development Centre Field Day
September 2001 - field plots toured by four University programs

February 2002 - trial results presented to growers in Nipawin
March 2002 - trial results presented at Nipawin Growers Meeting
April 2002 - trial summaries distributed to 300 + growers, industry stakeholders, seed supply companies, extension staff etc.
April 2002 - trial results presented in Extension Division Short Courses

March 2003 - trial results reviewed at SDAF (Nipawin) grower meeting
April 2003 - trial results reviewed at Saskatchewan Vegetable Growers Annual Meeting
April 2003 - trial results presented at GardenScape
April 2003 - trial results presented to growers at SDAF (Saskatoon) short course
July 2003 - field plots toured by SVGA members.
September 2003 - field plots toured by four University programs

January 2004 - trial results reviewed for grower/extension staff - Craik
February 2004 - trial summaries distributed to 300 + growers, industry stakeholders, seed supply companies, extension staff etc.
March 2004 - trial results presented at Gardenscape
July 2004 - research plots toured by SVGA members, Sask Ag and Food and CFIA
September 2004 - plots toured by 4 University programs
December 2004 - results presented at annual meeting of the SVGA
December 2004 - results presented to agrologists in Nipawin

January 2005 - results presented to regional Master Gardeners
March 2005 - results presented to growers/ regional agrologists in Melfort
March 2005 - trial summaries distributed to 300 + growers, industry stakeholders, seed supply companies, extension staff etc.
March 2005 - results presented at Gardenscape.

Budget

Capital Expenditures - nil.

Personnel on Salary

Jackie Bantle - research technician (part time)

Travis Sander - research assistant (part-time)

Peter Hagel - research assistant (part time)

Kyla LeRay - research assistant (part time)

Sharlene Mikituk (summer student)